Space Weather Forecast

Issued on Thursday, 06 June 2024 at 12:22 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of isolated Moderate flares

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low activity, but with frequent common-class flares, with the largest falling just short of Moderate at 06/0014 UTC. This occurred from a new region from around the southeast limb that is not yet visible. There are eight sunspot regions currently on the visible disc, however these are generally either small unipolar regions or simple bipolar groups. The main exception is a region in the southwest, which persists as a small but relatively complex group, and was the source of much of the recent flaring over the previous week. A region in the southwest also developed some complexity due to a reverse magnetic polarity spot developing near its trailer spot, however this has remained stable.

There are no Earth-directed Coronal Mass Ejections (CMEs), with the three observed CMEs, including the filament eruption on 05 Jun, either missing or on the far-side.

Solar Wind / Geomagnetic Activity: Solar winds have been at background or near background levels throughout, ranging 350-440 km/s. Interplanetary Magnetic Field (IMF) remained weak with the north-south component varying weakly, but perhaps favouring a negative (southward) direction. Geomagnetic activity was Quiet (Kp 1-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Periods of Moderate activity is likely with isolated M-flares and a slight chance of X-class flares. These most likely from AR3697, or perhaps new regions moving onto the Earth-facing disc.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. The next potential enhancement is likely to be from the arrival of faster solar winds from a weak coronal hole. These could bring slightly elevated or possibly elevated wind speeds later on day 3 or perhaps more likely on day 4 (08-09 Jun), although this is low confidence. Overall, Quiet geomagnetic activity is expected, increasing to give a spell of Unsettled with Active intervals with any coronal hole fast wind onset.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is likely to persist at background levels, with a slight chance of rising above the S1/Minor Radiation Storm threshold in association with any notable flaring that occurs.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	5	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	70	70	60	50
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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